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DEVELOPMENT OF TECHNOLOGICAL EDUCATION IN COMMUNIST CHINA

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[Following are translations of selected unsigned articles from various issues of the Chinese-language daily newspaper Kuang-ming Jih-pao, Peiping. Date of issue and page are given under individual article headings.]

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I. WORKING-CLASS TECHNOLOGICAL RANKS CONSTANTLY GROW STRONGER

Five factories--the Nanking Auto Factory, the P'u-chen Car Plant, an electric wire plant, Machine Shop No. 2, and Ch'en-kuang Machine Shop--have recently promoted 69 skilled workmen to be machinery engineers, castings, electricity, building, and the like, thus making stronger the technological ranks of the working-class.

These 69 engineers are vanguard fighters for production and technological reform, and also scouts in the cultural revolution. Take for example the nationally famous engineer Kuo Shao-chiang of the Ch'en-kuang Machine Plant, a workman born. The back-knife method he invented has won its way throughout the nation. In the past year or so, in the experimental making of new products, he solved a complicated technical problem--that of a spiral gear and made an all-purpose lathe. The promoted engineer of the P'u-chen Car Plant, Wei Chin-ch'eng, is a skilled workman 28 years old, who had only studied in lower primary school and in 1949 was merely a helper. Now he is not only very familiar with his own speciality of electric welding; he is well-acquainted with metallurgy, metal alloy materials, electrical work, and can devise a program of work by himself.

Each plant and business, through its Party committee, is giving training and instruction to these newly-promoted engineers from the working class, and doing it better. The Auto Factory has decided to open a training class on the maxim "Whatever is lacking, make it up"; and have organized them to study the theory of industrial arts, draftsmanship and similar courses. Some working-class engineers have written contracts with engineers from among the intellectuals for mutual teaching and learning. The engineers from the working class have been assigned to posts where they can best manifest their special talents; and in the present movement of technological reform and revolution, they are serving an important function.

Again. The concerned departments in Changsha have promoted 42 excellent workmen on the industrial, construction, transport and agricultural fronts to be engineers, and 5 outstanding peasants to be farming experts.

Of these 47 red-expert skilled workmen emerging from the big leap forward in industrial and agricultural production, 45 are Party members, and 1 is a youth corps member; 11 have been ranked as national progressive producers and 13 as provincial, 9 as urban. They have a firm working-class viewpoint and the Communist mores of "dare, think, say, do"; through a long course of actual production they have accumulated rich experience, and by hard study they are constantly adding to cultural and scientific knowledge; they have the ability to solve actual problems

of production, and have made notable contributions thereto. The national progressive producer, the young mechanical engineer Chung Tsu-yin, newly appointed to the Changsha lathe plant, has already invented an all-purpose tool lathe which mechanizes hand-labor and has won a national award. He has done wonders in technological reform, two of them quite recently. The central mechanics research institute has formally engaged him as research fellow. As to farming, the Changsha party committee secretary, recently-appointed herding expert Tsu Chu-lin, while serving as first party secretary of the Wang-yo commune, planted a "trial plot", asked questions of old farmers and of scientific experts, and quickly became a hog-raising expert.

In Nan-ch'ang, the Kiangsi branch of the China Academy of Sciences has engaged 82 model labor farmers to become special researchers.

These 82 men are all progressive producers who on the agricultural front have made outstanding achievements, some having been repeatedly cited, and some making grand achievements in 1959 as model laborers. Others gained big results in hog-raising in 1959. Others came to prominence in the 1958 leap forward continued into 1959. These 82 researchers gloriously took part in the recent Nan-ch'ang conference of Kiangsi progressive producing units and persons. On the forenoon of 4 March, after receiving invitations from the Kiangsi Academy of Science, they unamimously promised to abstain from pride and trouble-making, to preserve and manifest their glory, to try hard to make a yet finer showing in 1960, as a contribution to Party and people.

II. KIANGSU AGRICULTURAL MIDDLE SCHOOLS GET BETTER ALL THE TIME

Nearly 1000 agricultural middle school teachers from Kiangsu, who are taking advanced work in Nanking higher schools, on 4 March collectively celebrated the second anniversary of the founding of the agricultural middle schools. An address was delivered by Comrade Ou-yang Hui-lin of the Kiangsu party executive committee.

In the past two years, Kiangsu agricultural middle schools have grown to over 2100, enrolling 270,000 students. Of these, 51 schools having a fairly good foundation, and have started agricultural senior middle divisions. In teaching they have gained rather noteworthy results. In line with improving agricultural techniques, many schools, in addition their original courses have added physics and chemistry, and opened special courses in farm-tools, veterinary science, gardening, and the like. The middle schools have set up and expanded production plots on a large scale; and now a few have set up production plans for all-round growth in farming, forestry, herding, side-lines, and fishing. The ranks of agricultural middle school teachers have begun to expand. Under Party instruction and through experience of Party work, their political awareness has improved much. Agricultural middle schools get better all the time, with more and more brilliant results; so teachers taking part in the commemoration are pleased and cheered.

Comrade Ou-yang made an address to the assembled teachers. He congratulated the agricultural middle schools on their important achievements in two years. He pointed out that agricultural middle schools on the educational front, in building up the countryside, in the building of a national socialist economy, would be of still greater use. He praised the contributions of the teachers, urged more efforts to prevent pride.

Comrade Ou-yang made 5 requests of the teachers:

1. Strive to raise political awareness, honestly study the works of Chairman Mao. Demand that each one become "an excellent Communist and an excellent educational worker."

2. Work hard at study, summarize experience, do painstaking research, raise professional competence. Always remember that study is for the purpose of operating an agricultural middle school well; study as you teach, teach as you study.

3. Destroy superstition, exalt the crative spirit. An agricultural middle schools is creative by nature. Always be revolutionary, keep on improving the content of teaching, revise the course of study, the outline and materials, make the methods better. Productive labor in agricultural middle schools must give much attention to improving techniques and remodeling of tools, and stress inventiveness, using every way possible to replace clumsy physical labor with mechanization or semi-mechanization.

4. Try hard to be progressive, and pass on your attainments to teachers who have never learned; and take on some apprentices of your own.

5. Be sure to run schools frugally, setting this up as a new vogue. Other educational officials spoke. One of them, Yang Chieh, laid much stress on teachers' training classes and correspondence work. A representative of the teachers present responded with an address, promising painstaking study, and offering their own renewal to the glorious work of agricultural middle schools.

III. SHUANG-LOU AGRICULTURAL MIDDLE SCHOOL STRIDES FORWARD

The First Agricultural Middle School of Kiangsu Province -- the Shuang-lou of Hai-an Hsien--is striding forward with head high into its third year of upbuilding.

On 8 March 1958, the red banner of the first agricultural middle school in this province was unfurled here. For two years, under the bright shining of Comrade Mao Tse-tung's educational ideas, with improved guidance from Party committees and earnest aid from the masses, and painstaking effort by all teachers and students, it has gone steadily forward. Now this middle school has a senior as well as junior division. There are 8 grades with 386 students, nearly four times what it started out with. There are now 22 in the faculty, with president, deans, and proctors, and every system complete, including branches of Party, Corps, and Pioneers. After the commune movement, under the united management of the Ch'u-t'ang commune party committee, 103 rooms of school buildings were repaired or constructed and 140 mou of land were assigned to the school for permanent buildings and for productive ground. Due to firm observance of "half-farming, half-studying" methods, the students' quality of knowledge continually rose. In last semester's final examinations, the school's average grades in language and mathematics reached 79%; and the two earliest spring classes, entering the Nan-t'ung Special District unified examinations, averaged 92% in language and 87% in algebra. In the matter of productive labor, they fulfilled the aim of "Make primary the side-lines and high-yield economic crops, giving like emphasis to farm side-lines"; they built animal-feeding pens, started paper-making, weaving, bean-processing and similar mills, opened peach orchards, mulberry groves, truck-gardens, and gave all-round development to farming, forestry, herding, side-lines, and fishing. This not merely increased income (178 older students becoming fully self-supporting) it also made the students versatile in production skills. The school joined teaching with productive labor, vigorously pushing research in agricultural science. Last year's experiment of "100 kinds in 100 mou" added to the "Eight Word Charter" not only raised the students' productive skill, and increased their knowledge of farming, so they got on the average three-fold more output than local producers; it also gave local agricultural science research agencies a rather complete set of materials, offering to the commune effective techniques for increasing production. This agricultural middle school also carried on good stock-breeding, fattening, advance information on disease and insects, and daily developed the function of "important bases for raising rural culture and spreading advanced techniques." At the beginning of this semester, in order to meet the needs of the commune to become mechanized and electrified, it has added courses in farm machinery and so forth.

In meeting the second anniversary of the school's founding, teachers and students recalled its glorious accomplishments and looked at its brilliant future, deciding in a ceaseless revolutionary spirit to operate their own school still better. Encouraged by the news of a provincial and a national assembly of cultural heroes to be called, students and teachers in great glee drafted an all-round leap forward, with special attention to improving education in ideology and study of teaching techniques. They fully guaranteed that the first class of graduates would be of high quality, improving field administration of summer crops and preparations for spring plowing and sowing, strongly promoting hog-raising and side-line industries, production of high-yield economic crops, steady and augmented income, continuation of "100 mou, 100 kinds" and other research into farming science, vigorously pushing the movement for better tools, speeding the mechanization or half-mechanization of handicraft work, and becoming pioneers in production. To assure successfuly completion of every task, this school further decided to organize at once all teachers and students for honest study of Chairman Mao's works, so their thoughts may become redder and redder.

Chiang-yin Hsien in Kiangsu, in improving leadership of ideological teaching in agricultural middle schools and of teaching work, is using various means to assure that the first class of graduates will have excellent grades.

Among Chiang-yin's 11,000 or more students in agricultural middle schools, over 2100 have entered the junior middle third year. Of this group 578 (transferred from a supplementary class) will furnish junior middle school this summer, becoming the first class of agricultural middle school graduates. To ensure the hsien's first agricultural middle class of graduates having excellent grades, the hsien has set up for them a guidance team; and each agricultural middle school, under guidance from the commune party committee and the school party branch, set up a graduates' work team, emphasizing teaching of the graduating class, setting the pace for the teaching of all other classes, with all-round raising of teaching quality.

As soon as agricultural middle schools opened this semester, all commune Party committees improved ideological teaching all along the line. Party committee secretaries of Hsi-shih Ch'iao, Shen-chiang, Yun-t'ing and elsewhere communes, came in person and spoke at the agricultural middle schools, attending ideology classes, holding conferences with students, concretely arranging students' study, labor, and living, and arousing much confidence. Teachers at Hsi-shih Ch'iao honestly drafted teaching plans, and besides finishing the teaching of the new courses according to quality and amount, gave over a month for helping the students do a general review. The students aroused fervor, and the graduating class put forth a ringing slogan: "Adopt the great Communist purpose, in teaching try to make middle education universal, be a vanguard in production, unfurl the red banner in ideas, climb peaks in scientific

research, get good vocational grades, master techniques, comply with Party assignments, build a new countryside". Toward the agricultural middle schools of the whole hsien they issued the proposal: "Try to make outstanding grades, forreport to the Party". Thus was aroused a hsien-wide popular movement that involves study, effort, surpassing, and helpfulness.

IV. LAN-CHOU AGRICULTURAL INSTITUTE AIDS RECONSTRUCTION OF FARMING

The Lan-chou Agricultural Institute has taken manifold measures and offered resources for reconstruction of agricultural technology, to aid in a big leap forward in agricultural production.

The party group in the institute has always taken much interest in aiding this big leap forward, holding that this was a glorious and weighty duty for an agricultural middle technical school. In line with Kansu's urgent need for agricultural experts, they dug out latent resources and started various short training classes. For the past two years or more, they have trained over 700 experts in crop-culture, orchard and garden care, forecasting of plant diseases and pests, soils and fertilizers, seeds,keeping accounts, fish-culture, and so on. They were of positive helpfulness in the big leap forward in agricultural production, and some became stalwart cadres in agricultural reconstruction. The institute's various plants and centers have used lectures, spot observations, and personal operating to transmit farm techniques to the commune cadres. Now the institute has listed short training classes in the curriculum, so they are regular political and teaching duties. Lately they have deciced to add courses in fish-culture and in statistics.

The institute also uses intramural experiments and research and organizing investigation and visiting of large productive fields, to draw lessons from production experience, to write and publish scientific technical works on agricultural production. Over 20 volumes are ready for publication. These works will prove very useful in spreading agricultural science, and guiding agricultural production. For the past two years the institute has aided many agricultural bureaus with good seed and materials: over a million chin of bacterial fertilizer, 6000 chin of mineral fertilizer, over 9000 quick soil testing boxes, 1000 fertilizer-analysis boxes, 20,000 chin of hog manure, and 39,000 chin of anti-biotics for animals. During busy seasons, the institute's teachers and students have taken part in commune labor, helping to plow and harvest; and organizing small drama groups to visit and perform for the communes, proclaiming Party aims and policy, experiences in the big leap forward in agricultural production, and newest accomplishments in agricultural science research.

V. DESIGN AND COMPLETE TWO AUTOMATIC LINES OF PRODUCTION

Students of the Peiping Mechanics Institute's middle school vocational section who are nearing graduation, have combined their graduation designs with strong help to the movement for factories becoming mechanized and automatic.

Machine-building vocational students undertook the task of designing two automatic lines in the Peiping first lathe plant, and making automatic 12 single machines. After hard fighting for less than a month, the design task was all done and now they are in the installing stage. Four of these machines, in becoming automatic, show good results in testing, with efficiency raised one or two fold. They will soon be in process of manufacture. Students in vocational casting worked hard in a certain machine plant in Peiping four days and nights and completed the design of a metal device. Refining on China's traditional experience, they made a casting machine that took the place of hand-work, with much saving of labor and improvement in working conditions. In the Peiping instrument factory, vocational students designed a running-water device that has already begun to be manufactured.

To design an automatic production line, a series of complicated technical problems must be solved, including automation in each machine on the production line, transmission of individual parts, and the mutual adjustment of each machine's production rate. In finishing this task, the students' difficulties were very numerous. They worked very hard, however, mingling study with action, overcoming heavy obstacles, and accomplished their task with much credit. In the process of designing, in order to fill up lacunae in practical knowledge, some students collected materials, some went to other factories to observe. In attacking the formula of the design directly, the students worked hard night and day. Some student teams, in dealing with one project would suggest over 30 formulae for comparison; and after group discussion would collect the fine points of each formula, and honestly accept the views of old teachers and skilled workers, deciding at last on the formula which was the most simple and correct.

School and factory fully manifested the Communist spirit of big cooperation. The factories, busy with production duties, would draw off many skilled workers and experts above 5th grade to give guidance on the spot, and to take part in designing and experimental manufacture. The institute brought out all its latent resources, taking the initiative in fitting in with the factory and giving much help. ThePeiping First Lathe Factory, pressed with production tasks, had over 400 items of parts which they could not process on the design automation line; workmen in the institute's plant, learning of this, gave up their rest day and finished processing these parts on time.

In order to meet the pressing needs of the building industry in Peiping, 450 teachers and students of the Peiping industrial institute

recently went out in groups to aid 16 factories in the capital to become mechanized and made automatic on a large scale. Taking part were second and third year students from the four vocational departments of machine-making, installing chemical apparatus, automobile maintenance and repair, electric installations in industrial plants. This year the students of class #304 in installing chemical apparatus, soon to graduate, have entered the movement for technological reform and revolution in the Peiping drug factory and plastics plant. The young teacher Fang Chih-lai, who not long ago attended a meeting of Peiping culture champions, before starting out threw down five challenges to the teachers. This red banner man of the educational revolution, determined to do also a big job on the production front, to become a noteworthy vanguard fighter.

After the teachers and students arrived at the spot, they were given a hearty welcome by management and workers. The Peiping Advanced Steel File Plant and other units very quickly gave them assigned tasks. The drug factory gave them 23 tasks asking their help in solving them. The visitors were full of enthusiasm, determined to give all the strength and knowledge they had.

VI, WEST YUNNAN MECHANICS' INSTITUTE SERVES LOCAL INDUSTRIES

The West Yunnan Mechanics' Institute has held fast to its course of serving local industries and attained definite results.

Since the school was founded in 1958, teachers and students, along with completing the teaching task, have been of positive help to local industries in skills. The school has cooperated with the No. 1 and No. 3 general machine shops of Ta-li, and organized training classes for skilled workmen, training a large number for the factories. In order to fit in with technological reform and the experimental making of new products in local industries and commune industrial plants, the school has enlisted teachers in drawing and similar courses to go to the Hua-hsin-pa paper mill, the Ta-li iron works and the Teng-ch'uan sugar mill to design and sketch on the spot the machines and parts needed. The drawing study group has enlisted teachers and students to use spare time for sketching new plans for other plants, these sketches numbering 450 and being of much help in local production.

The institute's own plant, while being built, formed close relations of mutual aid with Ta-li No. 1 and other plants, and by processing incoming materials has directly aided production in more than 20 plants. In April 1959, in order to meet the urgent need of the villages for irrigation machinery, the institute's plant took over from Ta-li No. 2 General Machine Shop the duty of making 8-inch water pumps and processed and installed 20. The institute also sent teachers to the Vanguard Tool Plant of the suburban communes to give guidance in technical processes and in making tools and parts, enabling said plant to get rid of clumsy hand-work.

VII. KIRIN EMPLOYEE EDUCATION ENTERS A NEW STAGE

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The Kirin industrial front is becoming mechanized and automatic. The large-scale carrying on of this technological revolution has shown the need for training quickly skilled personnel for educating employees, and has created such conditions. While mines and industries throughout the province have laid strong hold on spare time education for employees, they are also opening up employees' short-term middle vocational schools on a large scale and short-term higher vocational schools. The content of teaching is also being adapted to the demands of the technological revolution, by speedy changes. At the same time, popular workmen's scientific research groups are rapidly multiplying, and the results accumulating. The technological and cultural revolutions have become closely joined, each stimulating the other, a new condition like flying with two wings. Employee education has entered a new stage.

At present, Kirin province has 2,726 employee spare-time schools attended by 89% of all employees in school, nearly 100,000 more than at the end of 1959. In spare-time universities are 15,000 persons, over 8% more than at the end of 1959. And the average rate of attendance in all grades of school is better than in the past, and continually rising. Along with this big expansion of spare-time education, all industrial units of more than 1000 employees had started 13 all-day short-term higher vocational schools by the 5th of March, taking in 1150 employees. In addition, some 60 units are getting ready to open all-day schools, planning for 6000 students, to begin very soon. This brand-new situation means a big technological revolution in mines and factories, bringing mechanization and automation, economizing on human labor, and demanding quick training of skilled personnel. For example, certain workshops in the Ch'ang-ch'un heating materials plant have become automatic, freeing 300 workmen. They have readjusted the labor force, releasing some workers; this has made possible an anti-illiteracy class free of productive work, and also an all-day employee short-term higher vocational school. Or take the T'ung-hua area where illiterates are more numerous; since illiterate workmen could be set free in groups to study without producing, the advance in anti-illiteracy work was much increased.

Employee education in many industries, in order to meet the needs of production and of the technological revolution as well, have adopted all sorts of effective measures, in the spirit of combining long-range with immediate needs. Automobile Factory No. 1, in Ch'ang-ch'un in order to join workmen's education with production has opened a popular "movement for suggesting topics", in which 12,300 topics were suggested within a month. After revision, 1300 topics were used as supplementary material, strongly adapted to production needs. Also, fitting the progress of the

technological revolution, technical courses were added, learning along with producing some technical reform, with big and instant results. For instance, in the heat-treatment workshop of said plant, as the workmen asked for items of reform, a technical expert would give them a lesson in automation in a certain type of production; and after giving information about the nation's automatic installations, and after study by cadres, senior workmen and experts, formulate a reform item as an important step in automatic production, changing the former condition of many rejections on account products being constantly below standard. The workmen comment: "Such learning really relieves thirst". In a State-operated machine-shop, when the entire shop waged a big battle over technological revolution centering around mechanization and automation, they organized the whole faculty into an aid group, headed by the office-chief of the workmen's education committee, dividing into six groups and going deep into the workshops, to help the workmen with their technological revolution. Teachers of mathematics and mechanics were distributed among the machine shops, chemistry teachers to the chemical workshops. Each group went deep into the shop, first as members of the technological revolution, taking an active part in the movement. They would seize upon the chief items in the shop needing reform, find out what scientific and cultural information was needed by the workmen, then take ways of helping them solve the problems. For example, the problem of blades in the tool-shop used to be solved in part by import; but in the technological revolution, the workmen suggested making these themselves. In response to this request, the mechanics teacher helped them find a basis on the theoretical side, the mathematics teacher did some calculating and rough drawing, the teacher of Russian hunted for foreign materials in the bookstore; all this proved of positive help towards reform. Secondly, in the matter of trying out new items and making them, they helped with summarizing on the theoretical side, and with prompt publicizing. For example, a piece-worker in the sixth workshop bicycle section invented a chemical light-transmitting method; the chemistry teacher then from chemical theory explained the principle of this great reform, causing all the workmen to grasp quickly this advanced technique. At the same time, due to the teachers entering deeply into production and being familiar with it, they have also written supplementary material, closely joining learning with production. At present they have incorporated into various courses electroplating, mechanical blue-printing tin-acid-sodium and other subjects, 11 in all.

This thoroughgoing technological revolution has greatly stimulated popular scientific research. For example, the Kirin Chemical Industry Company, from headquarters to its various shops, wants to develop 1010 small science study groups, enlisting 10,000 men for research, making a large popular net of science study. In the big debate on production through technological revolution, the chemical company proposed 15 appeals for important technological reforms to save money and labor and show quick results; study groups in the various plants responded to these appeals,

joining them with their own studies of expansion in production. The Ch'ang-ch'un gas company centers around its chemical section, making a popular network of science study. From March until now they have studied 17 weighty reform items. The chemical shop carbon-black group's production line alone has greatly lightened physical labor, saving 30 workers and 86,000 yuan during the year.

The circumstances described above show how the growth of education among Kirin employees has already entered upon the combination of production, education, and scientific research centering around a technological revolution in production, with spreading and raising of education proceeding together, truly a new stage.

VIII. ENERGETICALLY SUPPORT SPARE TIME EDUCATION FOR EMPLOYEES, QUICKLY DEVELOP TECHNOLOGICAL CAPABILITY

This conference is going on very well. For several days, we have been hearing many units of Heilungkiang province and Harbin city tell their experiences, and have heard some experiences of other provinces, cities, and autonomous areas, the subject-matter being very good. While the conference is not yet over, judging by what has been heard, it is already very rich. We can judge that the conference will gain many more results, and that this conference will carry our work forward. This conference has had two important elements: one, the exchange of experience; the other, how to program our future work, including that of 1960, and that of the next 3 years and the next 8 years.

I. On Employees' Spare Time Education

The Party central committee and Chairman Mao have always given much attention to education for the masses of workers and peasants. In the 10 years since the founding of the nation, such education has brought remarkable results and rich experience. Especially in 1958-59, under the bright shining of the Party general line of building socialism and the all-round big leap forward of all activities in the nation, the victory of the commune movement, and the guidance of the educational revolution and the aim of "walking on two legs", education of employees has shown continuing advance. At the end of 1958, employees in the nation's industries, basic construction, transport, finance and trade, farming and forestry, irrigation and meteorology and other occupations, taking part in spare-time study numbered some ten million, and by the end of 1959 had grown to be 16 million, an increase of more than 50% over the year before. The proportion of young adults entering the schools was about 57%. In the two leap-forward years, not only was there much increase in quantity, there was also much rise in quality and leadership. Many enterprises began setting up systems of spare-time education, ranks of teachers were expanded, the scale of instruction was enlarged. There was much improvement in understanding employee spare-time education, its aim and method, especially its close relation to production. Now, whether in a big enterprise or scattered mobile units, all have created much experience. Such are, in Heilung-kiang, the Tung-an, Hsin-feng, and Wei-chien plants and the No. 1 Coal Yard; in Szechwan, the Chiang-ling machine shop; the Hsiang-chiang machine shop in Hunan; the Lin-ch'ing ship yard in Shantung. All have had good experience. On the whole, employee spare-time education, after 10 years of effort, especially the big leap forward of the past two years, has already brought a fundamental change. The former condition in some units of "one lazy, two

lax, three empty," has already basically disappeared. It has now ... generally become "one arouse, two confirm, three raise". The reason we have been able to do this in the past two years, is chiefly because Party committees and basic units, under correct guidance from the Party general line and the educational aim, have carried on work that was comparatively systematic and regular, and in touch with real conditions. Of course, we cannot be satisfied with these results, we want to continue leaping forward. At some time in the future, employee sparetime education will be growing, firm, and high, and really permanent, what wind and rain cannot destroy, green and fresh the year round.

To built a socialist and Communist society, we must ceaselessly raise the Communist consciousness of the entire nation, the technical level, and that of culture and science. As social productivity continually rises, the future society, besides production, recreation, cultural entertainment and athletics, will have more time for study. Spare time education by no means stops with anti-illiteracy, or various grades of education becoming universal, but lasts on, with more and more to do.

II. On the Present Task of Employee Spare Time Education

In the next 10 years, the great task before the people of our nation is to catch up with or surpass Britain in the amount of principal industrial products, basically establish an industrial system, basically modernize industry, agriculture, science, and culture, making our country a strong socialist nation. To attain this great goal, we must resolutely execute the Party general line of arousing fervor, striving for the upper reaches, and more, faster, better, and more economical building of socialism. The work of education must expand and rise greatly; we must in not too long a time train several million high-class experts and millions of medium-grade ones. To train that many personnel, it is not enough to rely just on all-day or half-day schools, we must also have spare time education on a large scale. Speaking of the number to be trained, the task undertaken by spare time education may be even larger. For this reason, education must fulfil the aim of "walking on two legs"; it must vigorously expand all-day and half-day schools, and also do the same for spare time schools.

Present employee cultural levels are as follows: illiterate and semi-illiterate, 21%; primary grade, 51.6%; junior middle grade, 22%; senior middle grade, 4%; university and professional, 1.4%. Employee cultural levels are still low; political, technical, cultural levels of all employees need much raising. Judging by the needs of production, and the principles of unified arrangement of producing, living, and learning, and the circumstances of employees entering school and their cultural status, the following ideas are suggested for spare time education:

1. Anti-illiteracy

According to statistical information from this conference, at the end of 1959, among the nation's young adults there over six million were illiterate or semi-illiterate, of whom 4½ million had entered school, and 1,600,000 had not. Semi-illiterates were more numerous in the country, as well as illiterates, amounting to over 40% of the young adults. As for the whole nation, our slogan for this work is to complete this task basically for young adults, during the second Five-year plan. For employees the date could be speeded up a bit as circumstances permit. We should try hard tp finish anti-illiteracy work among young adults in a year or two. This conference reported that many areas and occupational systems planned to finish basically this year, clearing the remainder next year. The coal sections, where illiteracy was more common, registered a strong resolve to do the same. In the present efforts, the leaders should take more pains over the difficult situations, studying them and giving more help. If throughout the nation illiteracy can be practically wiped out among young adults this year or next, and the remainder cleared up the following year, that will be a big matter; but among the new workmen taken on there may yet be some who are wholly or partly illiterate. We suggest that in the future, as new workmen enter the plant, along with instruction in ideology and safety techniques, all degress of illiteracy be wiped out too. As to workmen over 46 years old, especially illiterates who are stalwart cadres or progressive producers, we suggest that all who can learn try with all their might to get rid of illiteracy.

2. Have many spare time primary schools, and promptly universalize such education among young adult employees.

Promptly organize young adult employees who have gotten rid of illiteracy to study in spare time primary schools. In work, tightly join this activity with anti-illiteracy, so they form one piece. In the past, the results of anti-illiteracy efforts could be very well consolidated, chiefly for two reasons: one was, that primary education had not become universal among children, so with big illiteracy wiped out, small illiteracy appeared; the other was, that after getting rid of illiteracy, spare time primary education did not follow hard after. By now, many places in the nation have universalized primary education basically, while most of the remaining illiterates and semi-illiterates among the young adults have already been enrolled in schools. In order to consolidate the results of anti-illiteracy work, it is necessary to join tightly the universalizing of spare time primary education with the wiping out of illiteracy, so they become of a piece. When an employee arrives at spare time primary school graduation, he can read news papers and books, write letters, keep accounts and the like; and the possibility of his returning to illiteracy is greatly reduced.

Transforming a nation where illiterates abound into one where laboring people have a high degree of culture, is a great tactical duty. To complete it, we may compare it with a number of tactical projects. Anti-illiteracy and universalizing spare time primary education is the first project; universalizing middle education is the second; universalizing higher education is the third. In the first project anti-illiteracy and universalizing primary education are two closely related battles. Only as these two succeed, can we be sure that the project will wholly succeed. Only as this victory is won, can we lay the foundation for universalizing middle education. Therefore we must first finish the work of this year and next, determined to win the victory in the first project. Following the reactions of each area, and each occupational system, we just need to create conditions positively, and determine to act; this demand can be met. If individual units have hardships, give active help.

3. Try in the period of the third Five-year plan, to universalize spare time junior middle education among the young adult employees.

This task can be accomplished in something like the next five years. It can be done faster in some areas and some units. Some units have already universalized spare time junior middle education, such as the Harbin No. 1 tool unit. To make this type of education universal, we must plan to go ahead term by term and group by group, and do well the work of assembling a faculty.

4. Operate spare time middle grade vocational schools (senior middle) and spare time higher schools on a large scale.

To operate on a large scale means to use all our strength to this end. In the past, some comrades have said that to do spare time education, we must get rid of all illiteracy, then get hold of elementary education; only after doing this being able to get hold of middle education; and only after universalizing middle education could we operate higher and professional schools. This way of thinking is wrong. In fact, many enterprises, while not having yet universalized elementary and middle education, still have many persons qualified to take in higher education, and also the requirements for operating higher education; this demands that we promptly begin to operate spare time higher and professional schools. Party committees in said enterprises, should now start, in accord with need and ability, spare time higher and professional, and middle and vocational (senior middle) schools. According to the Harbin committee report at the end of 1959 concerning some big plants in the system of mechanization, employes with senior middle or higher standing numbered 19%, those with junior middle or higher numbered 36.7%, elementary 36.3%, illiterate and semi-illiterate, 8%. According to an investigation of the Peiping vacuum tube plant and the No. 1 Lathe Plant employees with senior middle standing or above, numbered

about 25%, those with lower primary grade about 50%, those with higher primary about 25%, illiterate and semi-illiterate about 5%. The foregoing figures show that in many modern large plants, employees of junior or senior middle grade already comprise a large proportion. In such plants, the operating of spare time higher schools and middle vocational schools on a large scale, is not only urgently needed but conditions for same are fully present. Just now the large-scale operating of spare time higher schools and middle vocational schools is significant along two lines: 1) to train a large number of skilled personnel; 2) to prepare teachers for universalized spare time middle education. To have spare time middle education on a large scale, we must take hold of both ends: taking hold of higher education we can solve the question of faculty, taking hold of primary education we will have sources of students. For this reason, the three are closely connected; we must take hold of both ends to carry the middle, and to make an all-over arrangement. When taking hold of spare time higher education, we must also give attention to laying hold on the fine points in techniques, taking hold of large modern plants. This is in order to master more rapidly the techniques which the nation needs most, and climb the peaks of science and skill. Just so we take hold well and promptly, the personnel trained in spare time schools will be numerous, and can be of very high quality.

5. Further build a spare time educational system from primary to higher.

Some areas and some enterprises have already begun to build a spare time educational system, and such experience has been widely reflected in this conference. Judging by this experience, under definite conditions, the more and higher spare time education is operated, the easier it operates; the less and lower it is operated, the harder. For as it is more and higher, it becomes an easier system, teachers are found easier; when the workmen begin to learn, they grasp first principles, finding it easier to grasp and learn. We should seize the opportunity, do spare time education on a large scale, and build up a system. Some large enterprises can build fairly complete spare time educational systems from primary to higher. Some can operate joint spare time universities in cooperation with other enterprises; especially those of similar nature and not too far apart can use their funds to raise quality. Some that have difficulty in operating singly, or jointly, can leave operation to the area or city. Or they may take the form of joint operation between a factory and a scientific research unit or between a mill and a higher school. To sum up, every way and type of cooperation should be tried out, and a system of spare time education built. Moreover, spare time education should cooperate with all-day and half-day schools, getting support from every quarter. We can see that the road ahead for spare time education is broad, and can train technical personnel "more, faster, better, more economically."

6. There should be more attention given in industrial enterprises to the studying of leading stalwart cadres (workshop chiefs, section heads, team-leaders, and so on) and of progressive producers.

We must take effective measures, demanding that they reach a definite level in a definite time. To bring about these conditions, take all sorts of methods and solve their difficulties by study. Ask them to study better and rise faster.

In general, in the next 8 years, it may be that we can universalize primary education among existing young adult employees, and cause most of them to reach the level of junior middle graduation. Also it is possible to train, out of their number, tens of thousands of skilled workmen and administrative cadres who have the level of middle vocational graduation or that of graduation from higher or professional school. If this ideal is realized, the cultural status and technical level of present young adult employees will be much changed. Among them now, those of primary grade are in the majority; eight years from now, those of middle school grade and above will comprise the majority. When this is done, we will have traveled a long way on the path of workers and peasants being educated. To make our country into a strong socialist nation, and prepare for the transition to Communism, we must win the victory in the technological and cultural revolutions. This is a great political and historical task. We should actively serve in the cause of employees' spare time education.

III. The Whole Party and People Doing Spare Time Education Fully Carries out the Mass Line.

Spare time education is widely comprehensive, it is the business of educating several hundred million laboring people. For this reason, we must, under the guidance of Party committees, fully carry out the mass line, accomplishing the aim of the whole Party and people doing spare time education. Our socialist industry and business, communes, schools, science research units, hospitals, troop bodies, agency groups, must all operate them. So must our socialist industry and business, while also completing our production task of training personnel for our own organization and for the nation too. It may be that some comrades do not know whether all comrades understand all this well enough; and that others think it as simple as sweeping out illiteracy and universalizing primary schools. They do not see that spare time education must be responsible for training all grades of vocational personnel, and even want to spend time on the fine points. All industries and business must promptly take hold of the work of education, ally with all-day and half-day schools, and run many spare time ones.

In industries and business, the chief thing is to operate technical and vocational schools at present; general schools may be operated too, such as junior or senior middle. What is needed now is to plan for

joining with permanent schools, thus walking on two legs. In order to train a teaching staff, normal schools must be founded. Besides, there can be trained accountants, statisticians, medical and foreign language and caretaker personnel, and so on. Within the plants, the intellectuals and experts must "do two jobs," namely both technical and administrative, and as far as possible educational; that is, being both experts and teachers.

Industries and business must operate schools in accord with the needs of production and their own circumstances. They may be long-term or short term. They may adopt the method of being out of production for a definite time or partly out for rotation in training. Spare time study may be in classes, or by correspondence, or by radio or television, or in self-study groups, or guaranteed teaching and learning. In cities where television exists, schools with television have a big advantage; they can draw diagrams, experiment, act out a demonstration, as befits technical education. We will use every form and method, to train technical talent.

In operating schools, popular movements must be much used, fully arousing the multitude's desire to learn, enabling those workmen who should go to school and are qualified to take part in study, and making their study a regular matter. Popular enthusiasm must also be aroused for operating schools, so that teachers, equipment, and materials may be provided and improved.

In order to promote and do spare time education well, resources on all sides must be mobilized, and Communist cooperation be put into action.

IV. Further Apply the Principle: Combine with Production, Do Overall Arranging, Teach in accord with Talent, Be Vivid and Varied.

This principle is derived from past real experience in work; practice shows the principle to be correct. It is welcomed by both producing and by studying comrades. It ought to be still further lived up to in the future. Among these 16 Chinese words, the most important are to combine with production. Industries and business put production first; the aim and method of spare time education, the scheduling of work, all must fit in with the needs and circumstances of production, must fit in with the special features of the employees as producers and grown men.

Our teaching plans, content, and methods must be still further improved and raised. For the past several years, especially judging by the experience of the past 1-2 years, the time of study in all spare time schools can be somewhat shorter than the period envisioned by last year's national conference of educational workers among employes. In the past, when thinking over school systems, we always felt that all grades of spare time schools took more years than the corresponding all-day ones. Judging by the experience we now have, if we do careful

planning in accord with the special features of production and adult students, the time spent in spare time schools may be less than in all-day schools. Of course, suitably shortening the period of years must have a proviso, namely ensuring a definite quality, not just the shorter the better. As we carry on spare time education, we want to liberate thinking, to leap over the fences of the old education; we must have a ceaseless revolutionary spirit, and still further apply the principle of teaching in accord with talent, of being vivid and varied.

As to fixing the courses, we should arrange them according to the production needs in each occupation. In general, this arranging may be narrower and more precise than in ordinary schools; some courses may be omitted or postponed. But we will not limit ourselves to utilitarianism of experience alone; we must take care for long-range and intermediate needs, for those of modern production; and, as regards youth, for the need of further study.

As to teaching materials, Shanghai has expressed herself very well, showing they have done much work in this field. There is abundance of material in much variety; to handle it nationally is difficult. We must adopt the mass line method, all taking a hand in writing and revising. We suggest that provinces, cities, and autonomous areas take the lead as units in organizing resources to prepare and publish materials. Materials thus prepared will be more realistic. Materials prepared in various places may be revised while being used, and thus gradually perfected. Various localities can exchange for reference. By such action during a semester, some materials may become nationally known and used. This is an important kind of work that consolidates and improves spare time education, and so must be given attention.

Besides writing general materials, we must give heed to writing ordinary reading matter on all kinds of subjects. Each region and occupational system must arrange for this as an important project in the cultural revolution.

We must constantly emphasize ideological education, raising the Communist consciousness of the whole body of employees. Such education, besides studying current events and policies, must stress education in theory. Many vivid facts tell us that pushing the movement for studying Mao Tse-tung's thought among the worker-peasant masses has very brilliantly raised their ideological awareness and occupational ability. We must genuinely study Marx-Leninism, and the writings of Comrade Mao Tse-tung, and his ideological weapons. Our task is to raise up from among workers, red-expert personnel and Marxist-Leninist soldiers.

V. On the Question of Half-work, Half-study

This is a newly-emerging product of the big leap forward in education of employees in the past two years. We all love it. At present, in industries and business, there are three forms of half-work, half-study:

1. To speed training of apprentices and raise leading stalwart cadres. Results are very good. Each locality may start it according to need.

2. Enlisting elementary, junior middle and senior middle students to train skilled personnel, who thus become both workmen and students. Results are very good. In this form, it is only necessary that there be no question about the students' origin; then plans can be made and put into effect.

3. Initiating in old plants a "6-2 system" or a "7-1 system" of work-study. According to reports, plants using this form not only have overfulfilled their quota, but also the workmen have raised their political and cultural level rather rapidly. But this kind of work-study has its problems of labor-system and deduction in pay; it cannot be practiced everywhere now, but the testing can continue. We hope that plants trying out work-study will make a success and summarize their experience.

VI. The Question of Teachers

In order to develop and raise spare time education, the key is in the question of teachers. Comrade Ting-i says: In doing education, teachers are our front-line officials. For a big growth and improvement in our spare time education, we must strongly lay hold of the training and raising of teachers.

To solve the question of teachers, let us think of the following ways out:

We hope that each Party committee of a region, and of industries and businesses will, as circumstances permit, determine to assign as far as possible a quantity of leading stalwart cadres fitted for educational work, to be teachers, to add to the resources of spare time schools and fill up the ranks of teachers. For the past year, some regions have taken many measures in this matter, and strengthened spare time education.

The chief method for solving this question should be "Use local resources, make teachers out of the able". For wiping out illiteracy and finding teachers for spare time primary schools this method will do, and even for middle and higher schools. In the factories, engineers and experts, managers, and even qualified workmen can do this as additional duty. Besides, we must use the method of "self-renewal, when the water rises the boat is high"; "self-renewal" means that we must make an effort to train teachers, making this primary, seeking aid elsewhere is secondary. When the water rises the boat is high" demands that all grades of teachers continually rise, to meet the needs of growth in spare time education; and that as students rise, so must teachers too. We must operate all sorts of normal schools and teacher refresher schools, we must found bases for training teachers.

To strengthen ideological work among teachers, to make them see that spare time education is a glorious task, they must constantly raise themselves in politics and in professional competence. Some anti-illiteracy teachers, and elementary teachers, in striving to become middle school and even university teachers, just need to strive over a long time, and some will succeed. For working-class people to become educators, and teachers to become productive laborers, should become a commonplace habit. This is not merely an important avenue for reconstructing and raising thinking, it is also an important prerequisite for doing the work of teaching well. Without taking part in productive labor, it is not easy to join the content and methods of teaching very well with production. Even the teachers that are born in the working class must frequently take part in productive labor, for production skills are constantly developing and rising.

VII. The Question of Management

Spare time education must be carried on under the unified leadership of all Party committees. Now these committees have improved their leadership of educational work; and comrades who are in spare time education must more fully report conditions to the Party committees, and accomplish their work under Party guidance. Bureaus concerned must actively cooperate, working together like twisting a rope, to have good education for the workmen. "When all gather faggots, the flames leap high". Last year the central committee decided that all trade-unions should take hold of workmen's education as an important duty. This gave a big impetus to the cause. Education and production bureaus must still be responsible for this type of work; and all government and occupational agencies must appoint special persons to be in charge. Each bureau and basic unit concerned must start and strengthen an agency for managing educational work, and improving the force of cadres.

If spare time education is to be strengthened and raised as it goes along, we must raise the quality of management and of teaching. These must receive particular attention 3 or 4 times a year, with constant supervision and inspection, training of models, summarizing and transmitting of advanced experience. We must operate some special spare time schools well to serve as examples.

Further we must set up some necessary systems. In the past some systems have been abolished as being unsuitable. That was as it should be. To ensure the quality of workmen's spare time education, some important practices must be initiated, such as examinations, supplementary courses, leaving without graduating, asking for leave, and so on. There is also need for a definite plan for enrollment and promotion.

Spare time education must be both enthusiastic and realistic, all done honestly with no frills.

Spare time education is for the purpose of intellectualizing several hundred million laboring people, a great and glorious task for building socialism and passing over into Communism. However, we must also recognize that this is a very difficult task, and to accomplish it is not light or easy. We must positively, realistically, resolutely strive to get results. Under guidance from the Party central committee and Chairman Mao, and closely joined with the vast multitudes, striving together, our task will surely be successfully accomplished.

IX. HARBIN INDUSTRIAL UNIVERSITY JOINS TECHNOLOGICAL REVOLUTION

Teachers and students of Harbin Industrial University have joined the noisy movement for technological reform and revolution, making the school a research room for the factories, and the factories a laboratory for the school, linking the two as flesh and blood. Teachers, students, and work-men are breathing the same air, promoting technological revolution and reform, and raising ideological awareness and professional competence.

In the past few months this technological tidal wave has enveloped Harbin City on a large scale, with remarkable speed. In this rushing movement, it is eagerly hoped that science research groups and higher schools would help to solve many key questions in the factories that are awaiting solution. Harbin Industrial University promptly aroused teachers and students in related special courses to combine closely teaching, science research, and productive labor, and to throw themselves into this revolutionary movement. In the past 3 months, they have enlisted over 2300 teachers and students to go to Harbin's factories, business houses, basic units and so on, 400 in number, and to raise the level of mechanization, advancing toward automation, and to accomplish "four union" electricity supply for the whole city. They have developed and improved a material-saving lathe, and have been making contributions on other fronts.

In this heavy pushing of mechanization and automation, teachers and students of this school in the vocations involved have designed 73 automatic production lines and 132 types of single automatic machines, of which many are already in use, showing noteworthy usefulness in production. Students and teachers in the machine-making vocational course, working with the Sung-chiang welding plant designed and made an automatic production line, making what had been half hand-work and half mechanical become at one leap automatic production, raising the plant's daily production of double strips from 5000 to 20,000, and reducing the workmen from 8 to 2. Thus was solved the conflict between the production of double strips and the need for same in building cars. The special occupation course in machine-making, and the Harbin No. 1 Tool Shop, working together, designed and made an automatic production line for corrugated pipe sheets, raising the production rate for labor 17-fold, also saving one lathe. Teachers and students of the precision instruments vocational course, and the Harbin ball-bearing plant and the Ch'ang-ch'un precision machines research office, working together, designed and made an electric light automatic instrument for testing the quality of a steel ball surface, and its size. This not only had great value for production; it was high in scientific quality. Formerly, when examining the gashes, cracks, holes, and other defects on the surface

of spheres in ball-bearings, the light of a bright lamp was used to aid the human eye; workmen easily grew tired and could not be sure of the quality of their testing. After this automatic tester came into use, the testing instrument could at once automatically pick out pin-pricks or marks such as would be made by a needle on a steel ball. Thus efficiency was raised 5-fold over the time when workmen inspected.

After appearances of the "four union" electricity supply - an important reform in electric techniques - The Harbin Industrial University electric power vocational course and the motive power economics course enlisted over 100 teachers and students to spread this experience deeply throughout the city under guidance of the city committee. In the course of two months' work, they helped Tao-li, Tao-wai, Nan-kang, T'ai-p'ing, Hsiang-fang, and other localities, and certain factories, to set up an office for the technological revolution. They work side by side with the master workmen, going deep into the places where work actually goes on, doing responsible investigation on the spot, sizing up the equipment, suggesting ways for improvement. These suggestions on being used, have brought noteworthy results. In Tao-li district alone of 34 transformers originally used, nine were dismantled, 17 were simplified. The nine dismantled transformers totalled 2000 kilovolt amperes. The reform resulted not merely in satisfying the original responsibility; it also served to settle the question of using electricity for lighting 100 houses at Pan-la-ch'eng-tzu and for power in the factories. The Ta-hsing powder plant for many years used animal and human labor since electricity was lacking. Now with plenty of electricity, equipment has been mechanized, and the output multiplied eight-fold.

In Harbin Industrial University, teachers and students of the vocational lathe course cooperated with the Harbin joint machine plant and in the technological reform and revolution, they caused the material-saving lathes to "reach a higher storey." On the foundation of what was done with these lathes, they made one of large size that revolves automatically, is versatile, has interchangeable parts, is high-quality, high-speed, high in steel, and properly equipped with blades. These new-type lathes not only preserve original simplicity of structure, and ease of manufacture and repair but are small, yet usable on big jobs, and convenient to use. In addition to these advantages, they have enlarged the area of usefulness. Not long ago, the needs of communes in 6 hsien of Heilungkiang province, were investigated then three types of "lumber-saving" lathes suitable for use in rural communes were designed and completed. They are giving their talents to aid in the reconstruction of rural techniques. On the front concerned with reform of cutting instruments, teachers and students in the tool-making vocational course, working with the Harbin machine shop, put on the market over 50 types of advanced blades. Among them were two hard-alloy devices which multiplied ball-bearing efficiency 59 fold.

Cooperation between Harbin Industrial University and factories or businesses is a close combination of teaching, productive labor, and scientific research. Through cooperation between school and plant, teachers and students have obtained an all-round rich harvest. First, they have thrown themselves into the rushing current of the technological revolution and reform movement, have more deeply understood the needs of Party and the fatherland, and have changed these into motive power for work and for study. At the same time, our comrades' unselfish Communist mores of "dare, think, dare do" has given an impressive lesson to the teachers and students.

Dispatch from Hangchow: Chekiang University, beginning last January, has been stirring a warm tide of combining schools and factories for mechanization, semi-mechanization, and semi-automation. Over 3000 teachers and students have rushed to plants and business houses all over the province, working with workmen on a big scale for technological reform and revolution, and have reported preliminary victories.

As of now, there have gone 300 teachers and 3000 students from over 20 courses in various engineering departments to the Hangchow oxygen plant, Hangchow truck plant, Hsiao-shan electric machine factory, Pan-shan iron and steel plant, Chia-hsing smelting and machine plant, Ningpo transformer factory, Ch'ti-chou chemical works, and many other industrial, mining, and trade enterprises. Teachers and students have joined productive labor with learning production, graduation designing with scientific research, working with workmen to bring in much mechanization, semi-mechanization and automation, finishing thousands of reform projects in a very short time. Many of these are important reforms, proving of positive value in making hand-labor mechanical and semi-mechanical, and modern business semi-automatic. Teachers and students of the electricity department, in collaboration with the workmen, since coming to the factory in January, have finished over 800 technological reforms, 100 of these quite important. Fourth-year students, working with workmen of the second team of the Chekiang installing company made electric drills, multiplying efficiency, making drilling mechanical instead of by hand-labor. In the chemical department, 70 teachers and 400 students of the fourth and fifth year classes during only 3 days' time, suggested over 100 technological reforms in 36 plants and mines of the province. Among these were 5 automatic adjustments which increased productiveness in labor and improved workmen's living conditions.

Teachers and students in large numbers are taking part in the present popular movement for technological reform and revolution. This is not merely a big help to industrial production; still more important, it makes the teachers' theoretical knowledge better related to actual production, it enriches practical experience, it helps improve the work of teaching. The student masses in the practice of production, test out and confirm their vocational knowledge, they get living experience, they raise the quality of their study and their ability to work independently. For example, in the Hangchow lathe plant and auto engine plant, fifth-year

students in the machine metals vocational course who took part in technological reform, assumed the task of designing and making material-saving lathes and 6000 KW motors and by means of examining certain essays independently, collecting materials, analyzing problems, drafting formulae, technical study, discussion with plant workmen, and making diagrams and charts, their capacity for independent work was tested and improved all around, ensuring quality in design and accomplishment in profession.

X. INDUSTRY AND AGRICULTURE STUDENTS OF PEIPING UNIVERSITY SUCCEED YEARLY

The Party group in Peiping University has taken a series of actions to improve the training of industry and agriculture students and has accomplished much. These students' grades have been better year after year. According to statistics of 480 such students entering in 1958, 79.5% of such students' grades were ranked "Excellent". Industry and agriculture students' atomic energy course grades for good study rose from 35% to 87% this term. These students in the physical geography department without exception got grades of "Excellent" in Physics, Mathematics, and Russian language.

The Party committee in Peiping University has high regard for training industry and agriculture students. Year before last such students comprised 62% of all new students (including those sponsored), and last year 51.3%. In order to give a good foundation for such students entering the University, this institution, a month before the term's opening, started supplementary classes in mathematics and Russian, with intensive study. After the students began, the school became anxious about these students having too many departments, their background and special features for study, and put them in separate classes to facilitate teaching and guidance, especially giving individual guidance to these students in their difficulties; helping them solve the conflicts between study and work, improving their methods of study, and so on. In order still better to understand and solve industry and agriculture students' thought and study problems, the school also held informal conferences with them, listening to their views, helping them solve thought problems and practical ones too. Each department, in line with its own character, took many practical measures. The main party branch, after industry and agriculture students came into the school, joined this with the present situation giving these students instruction in love of profession and problems of being both red and expert, and told the study-groups that for advance in materials and in lecturing, they must examine the foundation and character of industry and agriculture. The chemistry department has set up a special class for industry and agriculture students and assigned three experienced teachers for collective and individual guidance.

Party organizations have also maintained a tight hold on the political thinking of industry and agriculture students. Besides asking that they study political theory and Party aims and policy, each Party organization has carried on education on this combined with such problems as exist among such students. The Party branch secretary in the chemistry department, attending the meeting of the second-year industry and agriculture students, urged all to climb the high peaks of science, and help solve thearrangement of the time for study and work.

Industry and agriculture students of Peiping University on the one hand take an active part in all types of political activity in the school and in productive labor; and on the other hand actively prosecute their studies. Wu Hsueh-fang, a student in the Physical geography department, always made 2-3 points during his first year; but he had a clear purpose in study and obstinately conquered all difficulties with the result that his grades went up in a straight line, and in last term's final examinations he attained an all-round "Excellent".

XI. TRANSPORT STUDENTS HELP IMPROVE CRUDE EQUIPMENT

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Teachers and students of the harbor mechanization department of the Wu-Han Institute of Water Transport have gone thoroughly into the harbor to aid in reconstructing the loading and unloading facilities.

Beginning with the end of January, this department's section on the study of cranes had teachers lead three classes of fifth-2nd sixth-year students to Hankow, Huang-shih, Lan-ch'i and other ports to gather material for scientific research. In this scientific work, they carried on two forms of activity:

1. They went thoroughly into Hankow, Huang-shih and other points where harbor facilitates were rather advanced, to understand reforms in mechanizing loading and unloading, to help the workmen better understand how to raise the efficiency of the operations and solve the chief problems.

2. They went thoroughly into Lan-ch'i, to understand how the crude machines were being used, to help improve the facilities and their use, to select and fix types of such equipment, increasing by degrees the quality and effectiveness.

In Hankow harbor, what they observed was that in moving coal to the Steel Works, although the 4th work section had a good amount of machinery for loading and unloading, it was not systematized in a series and the various pieces were not well articulated, which hindered the efficiency of the whole operation. Workmen at this section urgently asked for help in designing and making machines to take goods out of the ship's hold and others for packing. Teachers and students, following the workmen's ideas, drew a design of a motor-driven machine of the latter kind, and aided them to study the former type. At Huang-shih harbor, teachers and students observed that the whole process of screening and transporting coal to the ships by leather belting was complex, needing over 40 men. They made a suggestion that the belt conveyor carry the coal direct to the ship's hold, which would not only increase efficiency, but also save 25 labor units on each crew. The "Pioneer" cranes used at this port were made by the workmen out of old materials, and can raise 800 to 1000 tons, with high efficiency. Teachers and students helped the workmen examine this machine's power, mechanical strength, and firmness, and found many points of excellence: high efficiency, simple construction and suitability for widespread use in small and medium harbors. The teachers and students are preparing to make further study of these cranes, adding turning and revolving mechanisms and automatic controls, thus forming a new type of automatic harbor crane equipment.

At Lan-ch'i, teachers and students stressed improvement of crude machines. As they joined in the physical labor of moving goods on the docks, they discovered "ram's-horn" carts made by the workmen, capable of carrying 200 kg. barrels of gasoline, which raised efficiency four-fold over the former method of carrying on the shoulder, and greatly lowered the work-men's labor. By summarizing, they showed the good points of these crude machines. Crude cranes made by the workmen from crude materials were highly efficient for loading and unloading. But they were complicated to handle, requiring 3 men; and very careful coordination was needed to avoid accidents. The visitors made some suggestions and sketched a diagram to illustrate. Altogether over 20 suggestions were for various improvements.

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